



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/698,867	10/30/2003	George Paskalov	100798.0008US1	2026
24392	7590	12/04/2007	EXAMINER	
FISH & ASSOCIATES, PC			WONG, EDNA	
ROBERT D. FISH			ART UNIT	
2603 Main Street			PAPER NUMBER	
Suite 1050			1795	
Irvine, CA 92614-6232			MAIL DATE	
			DELIVERY MODE	
			12/04/2007	
			PAPER	

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.



UNITED STATES PATENT AND TRADEMARK OFFICE

---

Commissioner for Patents  
United States Patent and Trademark Office  
P.O. Box 1450  
Alexandria, VA 22313-1450  
[www.uspto.gov](http://www.uspto.gov)

**BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES**

Application Number: 10/698,867  
Filing Date: October 30, 2003  
Appellant(s): PASKALOV ET AL.

**MAILED  
DEC 04 2007  
GROUP 1700**

---

Robert D. Fish  
For Appellant

**EXAMINER'S ANSWER**

This is in response to the appeal brief filed October 29, 2007 appealing from the Office action mailed August 22, 2007.

**(1) Real Party in Interest**

A statement identifying by name the real party in interest is contained in the brief.

**(2) Related Appeals and Interferences**

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

**(3) Status of Claims**

The statement of the status of claims contained in the brief is correct.

**(4) Status of Amendments After Final**

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

**(5) Summary of Claimed Subject Matter**

The summary of claimed subject matter contained in the brief is correct.

**(6) Grounds of Rejection to be Reviewed on Appeal**

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

**(7) Claims Appendix**

The copy of the appealed claims contained in the Appendix to the brief is correct.

**(8) Evidence Relied Upon**

5,876,663	LAROUSSI	03-1999
6,379,539	UBELHOR	04-2002

**(9) Grounds of Rejection**

The following ground(s) of rejection are applicable to the appealed claims:

***Claim Rejections - 35 USC § 112***

I. Claims **12-20** are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

**Claim 12**

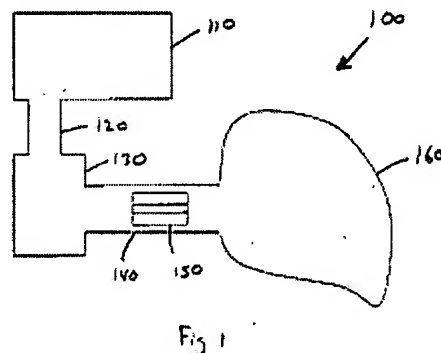
line 7, recites “without subjecting the waste directly to the plasma”.

Applicants’ specification, pages 1-6, does not mention without subjecting the waste directly to the plasma in the method. Thus, there is insufficient written description to inform a skilled artisan that applicant was in possession of the claimed invention as a

whole at the time the application was filed.

However, there is sufficient written description for flowing the waste into conduit **140** where it is carried past the waves of the RF plasma generator **150** (page 4, lines 22-23). The conduit, which is substantially water tight, carries the fluid waste past the waves allowing it to be **subjected to the waves** for an amount of time that is sufficient to inactivate or kill a substantial amount of the microorganisms in the waste (page 5, lines 5-8).

As shown in Applicants' Fig. 1:



the conduit **140** carries the waste in the vicinity of the RF plasma wave generator **150**. The waste would have been subjected directly to the waves produced by the RF plasma generator **150**.

The Examiner has carefully considered the entire specification as originally filed, however, there is found no literal support in the specification for the newly added limitation in amended claim 12. Applicants have not provided the page number and line numbers from the specification as to where the newly added limitations are coming from. *Ex parte Grasselli*, 231 USPQ 393 (Bd. App. 1983) *aff'd mem.* 738 F.2d 453

(Fed. Cir. 1984).

II. Claims **15-17 and 20** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 15

lines 1-2, it appears that “treating the waste at a rate of at least 20 l/hr” is further limiting the “conditions” recited in claim 12, lines 4-6. However, it is unclear if it is. If it is not, then what is the relationship between the step of treating the waste at a rate of at least 20 l/hr and the step of carrying the waste past waves produced by the RF plasma wave generator under conditions in which a substantial percentage of the population of a microbe in the waste is inactivated or killed, to produce a treated waste?

Claim 16

lines 1-2, it appears that “treating the waste at a rate of at least 20 l/hr” is further limiting the “conditions” recited in claim 12, lines 4-6. However, it is unclear if it is. If it is not, then what is the relationship between the step of treating the waste at a rate of at least 20 l/hr and the step of carrying the waste past waves produced by the RF plasma wave generator under conditions in which a substantial percentage of the population of a microbe in the waste is inactivated or killed, to produce a treated waste?

Claim 17

lines 1-2, it appears that “treating the waste at a rate of at least 20 l/hr” is further limiting the “conditions” recited in claim 12, lines 4-6. However, it is unclear if it is. If it is not, then what is the relationship between the step of treating the waste at a rate of at least 20 l/hr and the step of carrying the waste past waves produced by the RF plasma wave generator under conditions in which a substantial percentage of the population of a microbe in the waste is inactivated or killed, to produce a treated waste?

Claim 20

lines 1-2, it appears that “treating the waste at a rate of at least 20 l/hr” is further limiting the “conditions” recited in claim 12, lines 4-6. However, it is unclear if it is. If it is not, then what is the relationship between the step of treating the waste at a rate of at least 20 l/hr and the step of carrying the waste past waves produced by the RF plasma wave generator under conditions in which a substantial percentage of the population of a microbe in the waste is inactivated or killed, to produce a treated waste?

**NEW GROUND(S) OF REJECTION**

***Claim Rejections - 35 USC § 102/103***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public

use or on sale in this country, more than one year prior to the date of application for patent in the United States.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims **12-14** are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over **Laroussi** (US Patent No. 5,876,663).

Laroussi teaches a method of reducing biological contamination in a waste, comprising:

(a) providing an RF plasma wave generator (= the plasma is generated by applying RF voltage between two electrodes) [col. 2, lines 14-34]; and

(b) carrying the waste (col. 2, lines 35-44) past waves radiated by the RF plasma wave generator (col. 3, lines 30-37; and Fig. 1) under conditions in which a substantial percentage of the population of a microbe (= microorganisms) in the waste is inactivated or killed (= kill), to produce a treated waste (= sterilized) [col. 2, lines 45-55]; and

without subjecting the waste directly to a plasma generated by the RF plasma wave generator (= the water is exposed to **irradiation** for a period of time) [col. 1, line 67 to col. 2, line 2; col. 4, lines 54-55; and Fig. 1:



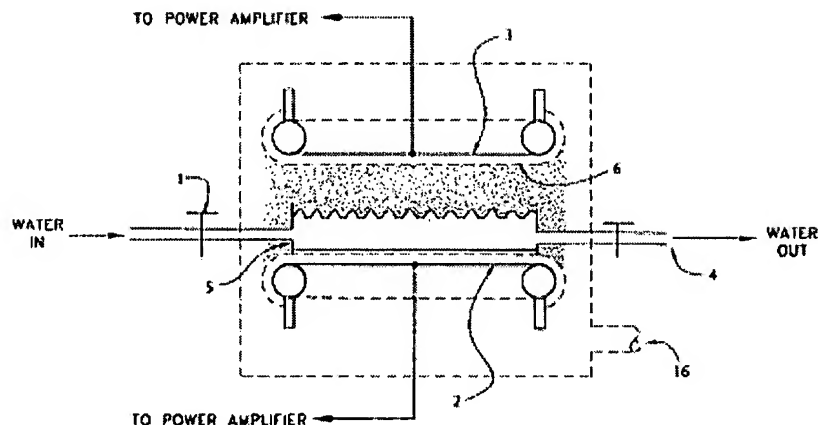


FIG. 1

, where

reference character **5** is shown as **a closed container**].

The substantial percentage is at least 50% (= kill or render inviable **all** microorganisms present in the liquid) [col. 1, lines 26-32].

The substantial percentage is at least 90% (= kill or render inviable **all** microorganisms present in the liquid) [col. 1, lines 26-32].

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

I. Claims **15 and 20** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Laroussi** (US Patent No. 5,876,663) as applied to claims 12-14 above, and further

in view of **Ubelhor** (US Patent No. 6,379,539 B1).

Laroussi is as applied above and incorporated herein.

The method of Laroussi differs from the instant invention because Laroussi does not disclose the following:

- a. Wherein the method further comprises discharging the treated waste into a navigable body of water, as recited in claim 15.
- b. Wherein the step of carrying the waste past the waves is carried out upon a ship, as recited in claim 20.

Laroussi teaches **water treatment systems of** municipalities and **other locations** can be treated and sterilized (col. 2, lines 8-12).

Like Laroussi, Ubelhor teaches treating water to remove impurities. Ubelhor teaches a water treatment system **10** resident on a boat **18** and the freshwater source is a lake or river that is accessible to through the water inlet line **20** of the boat **18** (col. 5, lines 6-10; and Fig. 1).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the method described by discharging the treated waste into a navigable body of water; and carrying the waste past the waves is carried out upon a ship because for those regions or countries wherein the government cannot afford or chooses not to provide, regulate and maintain a system to treat water to provide drinking water, it would have been desirable to provide a system and method whereby water from freshwater sources, such as lakes, streams, ponds, rivers, etc., can

be accessed and treated to provide safe drinking water as taught by Ubelhor (col. 1, lines 23-30).

**II.** Claims **16 and 17** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Laroussi** (US Patent No. 5,876,663) as applied to claims 12-14 above.

Laroussi is as applied above and incorporated herein.

The method of Laroussi differs from the instant invention because Laroussi does not disclose the following:

- a. Wherein the method further comprising discharging the treated waste into a sewer, as recited in claim 16.
- b. Wherein the method further comprises discharging the treated waste into a conduit in a municipal waste treatment plant, as recited in claim 17.

Laroussi teaches ***water treatment systems of municipalities*** and other locations can be treated and sterilized (col. 2, lines 8-12).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the method described by discharging the treated waste into a sewer; and discharging the treated waste into a conduit in a municipal waste treatment plant because Laroussi teaches sterilizing sewage (col. 2, lines 40-44).

**III.** Claims **18 and 19** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Laroussi** (US Patent No. 5,876,663) as applied to claims 12-14 above.

Laroussi is as applied above and incorporated herein.

The method of Laroussi differs from the instant invention because Laroussi does not disclose the following:

- a. Wherein the step of providing an RF plasma wave generator comprises operating the generator at a basic frequency of 0.44 MHz-40.56 MHz, as recited in claim 18.
- b. Wherein the step of providing an RF plasma wave generator comprises operating the generator at a modulation frequency of 10-35 kHz, as recited in claim 19.

Laroussi teaches that one skilled in the art will understand that the parameters are interrelated and will be able to select appropriate values of these parameters based on the teaching of his specification (col. 4, lines 36-46).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the step of providing an RF plasma wave generator described by Laroussi with wherein the step of providing an RF plasma wave generator comprises operating the generator at a modulation frequency of 10-35 kHz because the basic frequency and the modulation frequency are result-effective variables and one skilled in the art has the skill to calculate the basic frequency and the modulation frequency that would have determined the success of the desired reaction to occur, e.g., dependent upon the plasma forming gas and the kind of microorganism that is being killed (MPEP § 2141.03 and § 2144.05(II)(B)).

Furthermore, such changes may impart patentability to a process if the ranges

claimed produce new and unexpected results which are different in kind and not merely in degree from results of the prior art, such ranges are termed "critical" ranges and Applicant has the burden of proving such criticality; even though Applicant's modification results in great improvement and utility over the prior art, it may still not be patentable if the modification was within capabilities of one skilled in the art; more particularly, where general conditions of the claim are disclosed in the prior art, it is not inventive to discover optimum or workable ranges by routine experimentation (MPEP § 2144.05).

#### **(10) Response to Argument**

I. Claims **12-20** have been rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Applicants state that the parent application expressly teaches a quartz tube, which is a closed reactor ('208 Specification para [0019], line 1-5). This is also shown at '208 Figure 1, in which a plasma gas 34 is surrounded by a quartz tube 32. The tube prevents the plasma gas 34 from actually touching water streams 52, 54.

In response, claim 1, as presently written, does not recite a closed reactor. It is well settled that unpatented claims are given the broadest, most reasonable

interpretation and that limitations are not read into the claims without a proper claim basis therefor. *In re Prater* 415 F. 2d 1393, 162 USPQ 541 (CCPA 1969); *In re Zeltz* 893 F. 2d 319, 13 USPQ 1320.

Applicants state that if the plasma generator allowed water steams to flow past an open plasma, that open plasma could not possibly have such a low pressure.

In response, claim 1, as presently written, does not recite any specific pressure. It is well settled that unpatented claims are given the broadest, most reasonable interpretation and that limitations are not read into the claims without a proper claim basis therefor. *In re Prater* 415 F. 2d 1393, 162 USPQ 541 (CCPA 1969); *In re Zeltz* 893 F. 2d 319, 13 USPQ 1320.

Applicants state that it is true that the '208 specification also teaches the possibility of an "open" plasma generator as an alternative embodiment. ('208 Specification, para. [0020]). But teaching an open plasma generator as an alternative, merely reinforces the teaching of a closed generator as the preferred embodiment.

In response, the disclosure of reference must be considered for what it fairly teaches one of ordinary skill in the art, pertinence of non-preferred disclosure must be reviewed in such light (MPEP § 2123 and § 2141.02(VI)).

Applicants state that one of ordinary skill in the art would read the current

specification (and the parent application, which is incorporated by reference) to convey that the current inventors had possession of the concept of running the water streams past waves emitted by the plasma "without subjecting the waste directly to the plasma generated by the RF plasma wave generator".

In response, page 4, line 22 - page 5, line 27 of Applicants' specification recites:

Upon release of the fluid waste from the tank through one-way output valve 134, the waste flows into conduit 140 where it is **carried past the waves** of the RF plasma generator 150. It should be noted that waste can be carried past the waves in at least two substantially separate streams (*i.e.* a basic stream and an acidic stream) and then recombined after being subjected to the waves. The basic frequency of the plasma is preferably between 0.44 MHz and 40.68 MHz, and the plasma is preferably modulated at a frequency between 10 kHz and 34 kHz. Flow rates typically range from 20 l/hr to about 2000 l/hr, although multiple configurations and sizes of device are also contemplated, so that lower and higher flow rates are possible.

The paragraph says that the waste is carried past the waves of the plasma, but it says nothing about without subjecting the waste directly to the plasma.

II. Claims **15-17 and 20** have been rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Applicants state that the test for definiteness under 35 U.S.C. 112, second paragraph, is whether "those skilled in the art would understand what is claimed when the claim is read in light of the specification."

In response, claims 15-17 and 20, lines 1-2, respectively of each claim, recites "treating the waste at a rate of at least 20 l/hr".

There is no connection claimed between treating the waste at a rate of at least 20 l/hr and carrying the waste past the waves radiated by the RF plasma wave generator. These are two separate limitations. Since the method claims are given the broadest, most reasonable interpretation and that limitations are not read into the claims without a proper claim basis therefor, the "treating" would have read on a broader scope than that disclosed by Applicants' specification, and would have read on subjecting the waste directly to a plasma generated by the RF plasma wave generator.

**(11) Related Proceeding(s) Appendix**

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

This examiner's answer contains a new ground of rejection set forth in section (9) above. Accordingly, appellant must within **TWO MONTHS** from the date of this answer exercise one of the following two options to avoid *sua sponte* **dismissal of the appeal** as to the claims subject to the new ground of rejection:

(1) **Reopen prosecution.** Request that prosecution be reopened before the primary examiner by filing a reply under 37 CFR 1.111 with or without amendment, affidavit or other evidence. Any amendment, affidavit or other evidence must be relevant to the new grounds of rejection. A request that complies with 37 CFR

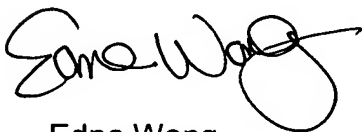


41.39(b)(1) will be entered and considered. Any request that prosecution be reopened will be treated as a request to withdraw the appeal.

(2) **Maintain appeal.** Request that the appeal be maintained by filing a reply brief as set forth in 37 CFR 41.41. Such a reply brief must address each new ground of rejection as set forth in 37 CFR 41.37(c)(1)(vii) and should be in compliance with the other requirements of 37 CFR 41.37(c). If a reply brief filed pursuant to 37 CFR 41.39(b)(2) is accompanied by any amendment, affidavit or other evidence, it shall be treated as a request that prosecution be reopened before the primary examiner under 37 CFR 41.39(b)(1).

Extensions of time under 37 CFR 1.136(a) are not applicable to the TWO MONTH time period set forth above. See 37 CFR 1.136(b) for extensions of time to reply for patent applications and 37 CFR 1.550(c) for extensions of time to reply for ex parte reexamination proceedings.

Respectfully submitted,



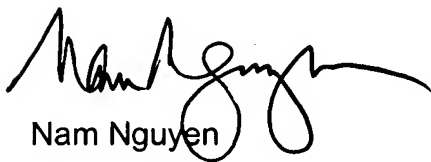
Edna Wong

**A Technology Center Director or designee must personally approve the new ground(s) of rejection set forth in section (9) above by signing below:**



Jacqueline M. Stone

Conferees:



Nam Nguyen



Kathryn Gorgos